

### **REMARKS**

The Office Action mailed July 18, 2007 has been carefully considered by Applicants.

In the Office Action, claims 1, 3 and 5 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Roehrig et al. U.S. Published Patent Application No. 2002/0097902 ("Roehrig") in view of Ema et al. U.S. Patent No. 5,779,634 ("Ema"). Claims 6, 7, 10, 11, 16, 18, 20, 21, 23-27, 29, 31-41 and 43-46 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Roehrig in view of Ema and in further view of Rogers U.S. Patent No. 6,970,587 ("Rogers"). Further, claims 14 and 42 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Roehrig in view of Ema and Rogers and in further view of Ozaki et al. U.S. Published Patent Application No. 2006/0050943 ("Ozaki").

Additionally, the Examiner has objected to claims 25, 44, and 45 due to claim informalities.

By the present amendment, the claims in the present application have been amended to more particularly point out and distinctly claim the subject matter of the present invention. The present amendment also alleviates any of the informalities objected to by the Examiner. Therefore, the claims of the present application are believed allowable over the Examiner's objections and the applied references.

### **Claim 1**

Claim 1, as amended, recites a method of displaying a stored image of an anatomical feature and at least one computer-detected region of pathological interest. The method has been amended to include the steps of receiving a user input command related to at least one of the uniquely identified markers, modifying the visual appearance of at least one of the uniquely identified markers according to the user input command, and saving the modified uniquely identified markers in the stored image file. The amendments to claim 1 further clarifies claim 1 by specifically claiming that a user input command is received that results in the modifying of the visual appearance of at least one of the uniquely identified markers. This amendment distinguishes claim 1 from the cited Roehrig and Ema references. The Roehrig and Ema references fail to teach the receipt of a user input command and the

resulting modification of a visual appearance of at least one of the uniquely identified markers according to the received user input command.

Claim 1 is further amended to include the step of saving the uniquely identified markers in the stored image. Roehrig and Ema further fail to teach the storing of the uniquely identified markers in the stored image. Rather, Figure 5 of Roehrig teaches a system by which the “computer applies image recognition algorithms to a digital image” each time the system is used by a clinician. Roehrig fails to teach storing the results of this process as a single file that includes the image data of the anatomical feature and the markers. Rather, the output of the system of Roehrig is “a list of locations” and this list “is sent for display to the viewing station” (0044) the digitized images (which may come from film based images) as well as the results obtained by the processing unit 610 may be stored in the memory 608; however, no disclosure teaches the combining of the image file with the result of the processing unit 610 as a single file for storage, transfer or later display. The separate nature of the images as disclosed in Roehrig is further supported in that in Roehrig the marks are “superimposed” on the corresponding location in the image (0048).

Therefore, for the reasons stated above, claim 1 is believed allowable over the cited Roehrig and Ema references.

Claims 3, 36, 37, 47, 48, and 53

Claims 3, 36, 37, 47, 48, and 53 all depended directly or indirectly from independent claim 1 which is herein believed allowable. Therefore, claims 3, 36, 37, 47, 48 and 53 are also believed allowable for the reasons stated above as well as the subject matter recited therein.

Claim 10

Claim 10 was rejected under 35 U.S.C. §103(a) as being unpatentable over Roehrig in view of Ema and Rogers.

Presently amended claim 10 further claims the display of an image of the anatomical feature, the image being of a diagnostic quality and saving the uniquely identified marker

with the image of the anatomical feature. Applicant believes these claim amendments distinguish presently amended claim 10 over the cited Roehrig, Ema and Rogers references. As addressed above, Roehrig and Ema fail to teach saving the uniquely identified marker with the anatomical feature image. Rogers further fails to teach saving the uniquely identified markers with the image. Rather, in Rogers, the image is analyzed by a CAD system to produce a CAD system output in which the CAD detections are "overlaid on the images." (Col. 20, Ln. 5-8) Later the clinician has the ability to add additional annotations to the CAD information; however, these annotations are only stored "in association with the CAD information" therefore, Rogers teaches a system in which the CAD system produces multiple output files. Therefore, the system that is taught in Rogers fails to teach a system with one of the benefit of the presently claimed invention in which image review and radiologist/physician workflow is improved by presenting all of the required imaging and diagnostic information in a single screen and stored as a single file.

Additionally, Rogers fails to teach visually modifying the classification and probability information displayed by the marker. While Rogers allows for annotation, these notes do not result in modifications to the display of the image and the markers.

Rather, Rogers teaches the addition or deletion of data points for cosmetic purposes (Col. 21, Ln. 54-Col. 22, Ln. 9). Yet Rogers fails to disclose a system that more effectively documents and displays computer and clinician analysis of an image.

Therefore, it would not be obvious to combine the annotation feature of Rogers with the information display of Roehrig to provide an annotation system that modifies the information as displayed on the image of the anatomical feature.

As such, presently amended claim 10 is believed allowable over the cited Roehrig, Ema, and Rogers references.

Claims 11, 38-40, 49 and 54

Claims 11, 38-40, 49 and 54 all depend directly or indirectly from presently amended claim 10. As such, claims 11, 38-40, 49 and 54 are believed allowable for the reasons stated above as well as the subject matter recited therein.

Claim 16

Claim 16 has been amended to include: “wherein upon the receipt of the selection of one of the markers and the selection of classification data, the processor modifies the visual display of the marker and stores an image file comprising the image of the anatomical feature and the uniquely identified markers on the on the storage media.” By the present amendment, claim 16 is believed to be distinguished over the cited Roehrig, Ema, and Rogers references.

As stated above, the Roehrig, Ema, and Rogers references each fail to disclose storing an image file that comprises both the image of the anatomical feature and the uniquely identified markers. The storage of both the anatomical feature image and the uniquely identified markers as determined by the processor and/or modified by the clinician is advantageous as it improves efficiency of review by the clinician as all of the recorded data for image interpretation and diagnosis is stored in a single file. The stored combined file also improves work flow by facilitating the transfer of both the anatomical feature image and the uniquely identified markers by combining them into a single file.

Therefore, the system as claimed in claim 16 is believed allowable over the cited references.

Claims 18, 20, 21, 23-25, 41, 50 and 51

Claims 18, 20, 21, 23-25, 41, 50 and 51 are each dependent directly or indirectly from independent claim 16, which is believed allowable. As such, claim 18, 20, 21, 23-25, 41, 50 and 51 are all believed allowable for the reasons stated above as well as the subject matter recited therein.

Claim 26

Claim 26 has been amended to include “a visual indication of a classification of the location of pathological interest; and wherein at least one of the visual indications is modified

based on user input and the modified marker is configured to be saved in association with an image of an anatomical feature.”

As stated above, the Roehrig, Ema, and Rogers references fail to teach a marker that is configured to be saved in association with an image of an anatomical feature. Roehrig, Ema, and Rogers teach the user of markers and other annotations for an anatomical image; however, these disclosures fail to teach that the markers are configured to be stored with the anatomical image, such that the image and the markers may be retrieved from a single file at a later time and may be easily transferred between remote locations.

As such, claim 26 is believed allowable over the cited references.

Claims 27, 29, 31-34, and 52

Claims 27, 29, 31-34 and 52 all depend directly or indirectly from independent claim 26, which Applicant believes is herein allowable. As such, claims 27, 29, 31-34 and 52 are also believed allowable for the reasons stated above as well as the subject matter recited therein.

Claims 14 and 42

Claims 14 and 42 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Roehrig in view of Ema and Rogers and further view of Ozaki. Claims 14 and 42 are believed allowable as the Examiner has impermissibly used hindsight in relying upon the presently claimed to piece mail references disclosing the elements found therein from both computer-aided detection systems and systems directed towards a clinician's review and annotation of acquired diagnostic images. While these systems are both in the field of diagnostic imaging, they are not so inseparable such it would be obvious for one skilled in the art to produce the claimed invention based upon the identified references.

As such, claims 14 and 42 are believed independently allowable over the cited references. Additionally, claims 14 and 42 depend directly or indirectly from independent claims which are now believed allowable. Therefore, for the reasons stated above, as well as the subject matter recited therein claims 14 and 42 are believed allowable.

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Conclusion

By the present amendment claims 1, 3, 10, 11, 14, 16, 18, 20, 23-27, 29, 31-34, 36-42, and 47-54 are presently pending and are believed allowable over the cited references. Such action is earnestly requested.

Respectfully submitted,

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